ORD-1h-89107
89_107_07_TJN94...

2001 Report to Congress on Monitoring the Impact of Medicare Physician Payment Reform on Utilization and Access

Tommy G. Thompson
Secretary
Department of Health and Human Services
2001

Table of Contents

Executive Summary ES-1

Introduction 1

Previous Reports 1

The 2001 Report 3

Question 1: Does the Medicare Fee Schedule continue to invoke the kinds of payment changes anticipated with regard to shifts of Medicare payments from procedural services toward evaluation and management services? 3

Question 2: Have there been reductions in access to physicians' services since the introduction of the Medicare Fee Schedule? 4

Question 3: Has payment reform exacerbated racial differences in access to services that were reported in earlier analyses? 6

Question 4: Are the impacts of the MFS on physicians' practices similar to earlier impacts detected? 12

Conclusions 14

References 17

Appendix A 18

Tables:

Table 1. Medicare Allowed Charges for Physicians' Services Paid Under the Medicare Fee Schedule by Major Type of Service Category: 1990-1999

Table 2. Medicare Per Capita Allowed Charges for Physicians' Services Paid Under the Medicare Fee Schedule by Major Type of Service Category: 1990-1999

Table 3. Medicare Physicians' services Paid Under the Medicare Fee Schedule: Number of Visits and Consultations per 1,000 Aged Medicare Beneficiaries: 1990-1999

Table 4. Medicare Physicians' Services Paid Under the Medicare Fee Schedule: Number of Procedures per 1,000 Aged Medicare Beneficiaries: 1990-1999

Table 5. Medicare Physicians' Services Paid Under the Medicare Fee Schedule: Number of Imaging Services per 1,000 Aged Medicare Beneficiaries: 1990-1999

Table 6. Medicare Physicians' Services Paid Under the Medicare Fee Schedule: Ratio of African-American to White Visit and Consultation Use Rates per 1,000 Aged Medicare Beneficiaries: 1990-1999

Table 7. Medicare Physicians' Services Paid Under the Medicare Fee Schedule: Ratio of African-American to White Procedure Use Rates per 1,000 Aged Medicare Beneficiaries: 1990-1999

Table 8. Medicare Physicians' Services Paid Under the Medicare Fee Schedule: Ratio of African-American to White Imaging Services Use Rates per 1,000 Aged Medicare Beneficiaries: 1990-1999

Table 9. Measures of Access to Care for African-American and White Medicare Beneficiaries. Data from the Medicare Current Beneficiary Survey: 1991 through 1998

Table 10. Usual Source of Care for African-American and White Medicare Beneficiaries. Data from the Medicare Current Beneficiary Survey: 1991 through 1998

Table 11 Hospitalization and Mortality Rates for Selected Heart and Vascular Procedures for African-American and White Aged Medicare Beneficiaries: 1990 and 1998

Table 12 Hospitalization and Mortality Rates for Selected Orthopedic and Back Procedures for African-American and White Aged Medicare Beneficiaries: 1990 and 1998

Table 13 Hospitalization and Mortality Rates for Selected Procedures for African-American and White Aged Medicare Beneficiaries: 1990 and 1998

Table 14 Hospitalization and Mortality Rates for Selected Procedures for African-American and White Aged Medicare Beneficiaries: 1990 and 1998

Table 15 Physicians Billing for Medicare Services, Average Caseload, Payments per Physician, Physician to Population Ratio, and Total Medicare Payments, 1995-1999: All Physicians

Table 16 Physicians Billing for Medicare Services, Average Caseload, Payments per Physician, Physician to Population Ratio, and Total Medicare Payments, 1995-1999: Primary Care Physicians

Table 17 Physicians Billing for Medicare Services, Average Caseload, Payments per Physician, Physician to Population Ratio, and Total Medicare Payments, 1995-1999: Surgical Specialties

Table 18 Physicians Billing for Medicare Services, Average Caseload, Payments per Physician, Physician to Population Ratio, and Total Medicare Payments, 1995-1999: Medical Specialties

EXECUTIVE SUMMARY

BACKGROUND

This 2001 report to Congress on "Monitoring The Impact of Medicare Physician Payment Reform on Utilization and Access" is the Secretary's seventh annual report submitted to Congress in response to requirements of Public Law 101-239, the Omnibus Budget Reconciliation Act of 1989 (OBRA '89). OBRA '89 required the Secretary to monitor and report annually the impact of changes in Medicare physician payment on utilization and access to care. This 2001 report is the last report to Congress on this topic in accordance with the Federal Reports Elimination and Sunset Act of 1995 (P.L. 104-66, Section 3003). OBRA '89 introduced significant changes in Medicare physician payment policy. The intent of the changes was to provide more rational and equitable payment for physicians' services provided under the Medicare program.

THE 2001 REPORT

Key findings from past reports indicated that introduction of the Medicare Fee Schedule (MFS) produced the kinds of shifts in payments that were anticipated. In particular, there was a relative increase in allowed charges for visits and consultations and a relative decrease in allowed charges for procedure-based services. The previous reports also showed that many vulnerable groups face barriers to care.

While the differences among vulnerable groups are a cause for concern, past reports showed that the introduction of the new payment system for physicians produced no new barriers to care for the vulnerable populations studied. Previous work by the Health Care Financing Administration and the Physician Payment Review Commission has established that the new payment system did not exacerbate existing barriers. The Secretary's 2001 report focuses on updating the trends in physician access shown in previous reports and describes ongoing efforts by the Department to reduce disparities in health care. This 2001 report updates three of the basic studies included in previous reports and adds a new analysis based on surveys of Medicare beneficiaries.

FOUR MAJOR POLICY ISSUES ADDRESSED

- Does the MFS continue to invoke the kinds of payment changes anticipated with regard to shifts of Medicare payments from procedural services toward evaluation and management services?
- Have there been reductions in access to physicians' services since the introduction of the MFS?
- Has payment reform exacerbated existing racial differences in access to services?

- Are there impacts of the MFS on physicians' practices?

HIGHLIGHTS

- The shift in payments described in previous reports, from procedural services toward evaluation and management services, was sustained through 1998 and for preliminary estimates for 1999. Prior to physician payment reform, procedures included under the fee schedule accounted for 46 percent of allowed charges, and visits and consults accounted for 40 percent. This pattern was reversed during 1992, the first year of physician payment reform. Data from 1998 and preliminary 1999 data show that visits and consults continue to account for an increasingly larger share of allowed charges (51 percent of allowed charges) than procedures (36 percent of allowed charges).

- Total Medicare allowed charges for physicians' services under the MFS increased by only 2.8 percent during the period 1995 through 1998, from \$41.1 billion to \$42.2 billion. This low rate of growth was due mostly to a decreasing number of Medicare beneficiaries receiving services in the fee-for-service area. For those beneficiaries receiving care in the fee-for-service sector, per capita allowed charges for MFS physicians' services increased by 9.4 percent during these years, from \$1,292 to \$1,413.

- Use of most types of physicians' services have increased since the introduction of the MFS. Total physician visits and consultations have increased from 12.2 visits per person in 1992 to 13.4 visits per person in 1998. Physician visits in the office setting, usually considered the principal site for access to health care, increased from 5.4 visits per person in 1992 to 6.5 visits per person in 1998. There were also increases in the use of a number of procedural and imaging categories as well. Per capita use rates increased between 1992 and 1998 by 11 percent for coronary artery bypass grafts (CABG), 80 percent for percutaneous transluminal coronary angioplasty (PTCA), 22 percent for cataract removal with lens implant, 44 percent for computed axial tomography scans, and by 117 percent for magnetic resonant imaging services. Services for which there were significant reductions in use rates, such as transurethral prostatectomy, were more likely due to changing medical practice unrelated to payment policy.

- While the updated studies continue to show that African-American Medicare beneficiaries face barriers to care, the access differentials have not worsened and in some cases appear to have improved slightly. For example, there is some evidence to suggest that African-American beneficiaries are experiencing improved access to referral-sensitive procedures. The rate of cardiac revascularization procedures (CABG and PTCA) is increasing more rapidly among African-American beneficiaries than among white beneficiaries. This has resulted in a narrowing of the difference between white and African-American Medicare beneficiaries. In addition, disparities in the 30-day post-admission death rate, reflecting to some extent differences in health status at the time of the procedure, are diminishing. For example, in 1998 the 30-day post-admission death rates following CABG were nearly equal for African-American and white beneficiaries, while African-American beneficiaries have lower mortality rates than do white beneficiaries following PTCA.

- As discussed above, physician office visit rates increased between 1992 and 1998. However, the rates increased faster for white beneficiaries than for African-American beneficiaries. As a result, in 1998 African-American Medicare beneficiaries had 19 percent fewer office-based physician visits than white beneficiaries, compared to a 14 percent differential in 1992. This is one of the few areas in which the racial differential was increasing. In addition, African-American beneficiaries had 39 percent more emergency room visits in 1998 than did white beneficiaries. While the office visit rate for African-Americans was lower than whites and the emergency room visit rate was higher, this was partially mitigated by the higher rate of consultations for African-American beneficiaries as compared to white beneficiaries. Moreover, other measures of access to primary care, based on data from the Medicare Current Beneficiary Survey, suggest that both white and African-American beneficiaries report improved access to care.

- Indicators for the number of physicians providing services under the MFS, as well as the number of unique Medicare patients seen by a physician (i.e., Medicare caseload) and allowed charges, continue to suggest that access to physicians' services has not deteriorated following the introduction of the MFS. Physician supply increased by 3.8 percent between 1995 and 1998. However, due to decreasing Medicare enrollment in fee-for-service, the physician to Medicare population ratio increased by over 10 percent during this time.

INTRODUCTION

This report to Congress for the year 2001 is the Secretary's seventh annual report submitted to Congress in response to requirements of Public Law 101-239, the Omnibus Budget Reconciliation Act of 1989 (OBRA '89). OBRA '89 required the Secretary to monitor and report annually the impact of changes in Medicare physician payment on utilization and access to care. This report is the last report to Congress on this topic in accordance with the Federal Reports Elimination and Sunset Act of 1995 (P.L. 104-66, Section 3003).

OBRA '89 introduced significant changes in Medicare physician payment policy. The three major components of the law were: (1) the introduction of a Medicare Fee Schedule (MFS), which was implemented beginning January 1, 1992, under a transition period ending in 1996; (2) the establishment of limits on physicians' charges exceeding the fee schedule amount; and (3) the institution of target rates of growth in expenditures for physicians' services. The intent of these changes was to provide more rational and equitable payment for physicians' services provided under the Medicare program.[1] There have been a number of changes in payment policy in recent years as well. The final rule concerning revisions to payment policies under the physician fee schedule for calendar year 2000 include a number of revisions such as implementation of resource-based malpractice expense relative value units (RVUs) and refinement of resource-based practice expenses.

PREVIOUS REPORTS

The Health Care Financing Administration (HCFA) has taken a broad and varied approach to monitoring access to care. Previous reports (the 1994, 1995, and 1996 reports to Congress) summarized the results of several studies, which primarily used the Medicare Part B monitoring system, Part A data, and two national surveys. The multi-pronged approach to monitoring access to care has allowed HCFA to examine access from various perspectives.

---

[1] As described in previous reports, payment reform is part of a continuum. Before the OBRA '89 reforms were instituted, a number of significant changes were initiated in physician payment policy that affected, and will continue to affect, utilization and access. These include the implementation in 1975 of the Medicare Economic Index as a limit on increases in prevailing charges; the initiation in 1984 of the participating physician program to provide incentives for physicians to accept assignment; the introduction in 1987 of the Maximum Allowable Actual Charge limits which restricted the amount non-participating physicians could charge; the reductions in prevailing charges for overpriced procedures instituted for one group of procedures in 1988 and for another in 1990; and the institution of fee schedules for radiology in 1989 and anesthesiology in 1990. Many other forces are also likely to continue to influence the diffusion of new technology into the health delivery system. It is important, therefore, to view any changes found in access, utilization, and appropriateness in light of the many factors that may influence the health care system in general and Medicare in particular.

In previous reports, several vulnerable population groups were identified and monitored. These include beneficiaries who are living in poverty areas; those dually eligible for Medicare and Medicaid; African-American Medicare beneficiaries; disabled Medicare beneficiaries; the very old (i.e., age 85 and over); Medicare beneficiaries without supplemental insurance; Medicare beneficiaries residing in rural areas or residing in areas designated as health professional shortage areas; and Medicare beneficiaries residing in areas expected to experience the greatest decreases in average Medicare fees.

There were several key findings from the past reports. Previous reports showed that the introduction of the MFS produced the kinds of shifts in payments that were anticipated. In particular, there was a relative increase in allowed charges for visits and consultations and a relative decrease in allowed charges for procedure-based services.

However, these reports also showed that many vulnerable groups face barriers to care. For example, they showed that race and income are major factors that influence the amount and type of services Medicare beneficiaries receive. African-American Medicare beneficiaries, regardless of income, visited a physician less frequently than white beneficiaries, received fewer preventive services, but were hospitalized more often. Among both races, the poorest of the elderly had fewer physician visits and preventive services, but were hospitalized more often than the most affluent. These patterns suggest that African-American beneficiaries overall and the poorest of both races may be receiving less primary and preventive care than whites and more affluent Medicare beneficiaries in both races.

Similarly, the findings in the previous reports also suggest that African-American and low-income Medicare beneficiaries are receiving less than optimal management of disease. In particular, African-American and lower income white Medicare beneficiaries have a higher rate of bilateral orchiectomy, a procedure performed for late stage prostate cancer. African-American and low-income Medicare beneficiaries also have higher rates of hospital admission for conditions that are potentially avoidable with timely and appropriate ambulatory care (ambulatory care sensitive conditions). An article based on data developed for these reports (Gornick, Eggers, Reilly et al. 1996) highlighted the analyses that showed that African-American and lower income white Medicare beneficiaries are also more likely to have an amputation of all or part of the lower limb, a procedure often performed because of complications of diabetes.

In addition to indications of less than optimal primary care and management of disease, the findings from past reports also suggest that African-American Medicare beneficiaries have less access than white beneficiaries to referral-sensitive procedures[2]. For example, African-American Medicare beneficiaries have lower rates of coronary artery bypass graft (CABG), percutaneous transluminal coronary angioplasty (PTCA), and joint replacements than white beneficiaries.

While these differences between vulnerable groups are a cause for concern, previous reports did not find evidence that the introduction of the new payment system for physicians produced new barriers to care for the vulnerable populations studied. Work by the Medicare Payment Assessment Commission and its predecessor, the Physician Payment Review Commission also found no evidence of a payment policy effect on access to care. Therefore, the current report focuses on updating the trends in physician access shown in previous reports and describing ongoing efforts by the Department to reduce disparities in health care. This report updates three of the basic studies included in previous reports and adds a new analysis based on surveys of Medicare beneficiaries.

---

[2] Referral-sensitive procedures are those procedures for which a beneficiary typically receives a referral from a primary care physician to a specialist.

THE 2001 REPORT

This report presents results from updating three of the basic studies included in previous reports. The Part B monitoring system is used to update total expenditure growth for MFS covered services and to assess changes in access to physicians' services in general. Part A data are used in these analyses to assess trends in the use of in-patient hospital services. The level of physician participation in Medicare's fee-for-service program is assessed through an analysis of Medicare's Provider Summary files. Finally, this year's report includes analyses of trends in access to care using the Medicare Current Beneficiary Survey.[3]

This report examines the same specific policy issues addressed in previous reports:

Question 1: **Does the MFS continue to invoke the kinds of payment changes anticipated with regard to shifts of Medicare payments from procedural services toward evaluation and management services?**

Table 1 shows the trend in total allowed charges for physicians' services covered under the MFS for the years 1990 through 1999. Between 1990 and 1991 allowed charges increased by 10.4 percent, from $29.9 billion to $33.0 billion, a rate of increase consistent with the double digit percent increases during the 1970s and 1980s. There was a slight decrease of 0.8 percent in allowed charges in 1992, the first year of the MFS. This reflects the 8.2 percent increase in visits and consults, offset by a 9.1 percent decrease in procedures. Increases in 1993, 1994 and 1995 were 4.0 percent, 11.5 percent, and 8.1 percent, respectively. The growth in expenditures between 1993 and 1994 for procedure-based services, as compared to the decrease in expenditures between 1992 and 1993, reflects a large adjustment to the fee schedule update in 1994 for the surgical services.[4] From 1995 to 1998 allowed charges increases by only

---

[3] The tables in this report with data from the Part B monitoring system include data through 1999, though due to the incomplete nature of the 1999 data, analyses of these tables are generally through 1998. Medicare Part A data on hospitalizations, and data from the Medicare Current Beneficiary Survey are through 1998.

[4] Fee schedule updates were based on expenditure performance relative to the expenditure target set under the Medicare Volume Performance Standard (MVPS) from 1992-1998. There was about a 2-year time lag between the performance year used to calculate the update and the year the update actually takes effect. That is, for a specified group of services, such as surgery, the January 1, 1994 fee schedule update reflects expenditure performance during fiscal year

2.8 percent, less than a 1 percent annual rate of increase. Table 1 and subsequent tables do not show changes between 1998 and 1999 because the 1999 data were not final at the time of this report. However, analyses of lags in bill processing suggest that final 1999 totals will increase by an estimated 2 to 2.5 percent over 1999 figures shown in Table 1.

The MFS was intended, in part, to shift payments from procedures to visits and consultative services. This has largely occurred. From 1990 to 1993, visits and consultations increased from 39 percent to 46 percent of the total allowed charges while procedures decreased from 46 percent to 40 percent. This shift in payments has continued in the ensuing years. The preliminary data for 1999 show that visits and consultative services will account for 51 percent of the total while procedures will have decreased to 36 percent of the total. Imaging services have remained more or less a constant share of the total, between 12 and 15 percent.

Although the increase in allowed charges between 1995 and 1998 appears very small, it is driven not only by payment rates, but also by the size of the Medicare population in the fee-for-service system. From Medicare's inception in 1966 until 1994, the fee-for-service population had increased every year. However, due to increases in managed care enrollment, there has been a decline in the Medicare fee-for-service population each year from 1995 through 1999. Total Medicare fee-for-service enrollment has decreased from a peak of 31.9 million in 1994 to 29.6 million in 1999, a reduction of 7.1 percent. It should be noted, however, that the trend toward increasing managed care enrollment has changed recently. The proportion of Medicare beneficiaries enrolled in managed care declined from about 17 percent of the Medicare population in 1999 to about 16 percent in 2000. Preliminary data for 2001 suggest a continuation of this decline, though this recent decline in managed care enrollment began after the years included in this report.

Table 2 accounts for these population dynamics. It shows MFS allowed charges per Medicare beneficiary in the fee-for-service sector from 1990 to 1999. With the exception of 1991 to 1992, per beneficiary allowed charges have increased each year through 1998, reaching $1,413 per Medicare beneficiary. The 2.8 percent increase in total allowed charges from 1995 through 1998 shown in Table 1 equates to a 9.4 percent increase in per beneficiary allowed charges. Thus, much of the reduction in the growth of physician expenditures is due to a decreasing population base.

1992 relative to the MVPS target for those services. The Balanced Budget Act of 1997 replaced the MVPS with a sustainable growth rate (SGR). Although different in several respects, the SGR also adjusts the physician fee schedule update based on expenditures relative to a target.

Question 2: **Have there been reductions in access to physicians' services since the introduction of the Medicare Fee Schedule?**

The tables in this section show use of services for aged Medicare beneficiaries arrayed by the Berenson/Eggers Type of Service (BETOS) categorization. The BETOS system was developed in the early 1990s as a means of tracking physicians'services. All HCFA Common Procedure Coding System (HCPCS) codes are categorized into one of 105 BETOS categories, not all of which are included in the MFS schedule. Each year, as new HCPCS codes are added to the payment system, the new codes are mapped into existing BETOS categories. A detailed description of the BETOS system is included in the 1994 Access report to Congress.

Visits and Consultations:
Table 3 shows rates per 1,000 beneficiaries for physician visits and consultations. The number of visits per 1,000 persons increased each year from 1990 through 1998 (from 11.3 visits per beneficiary in 1990 to 13.4 in 1998), although the rate of increase was less (1.7 percent per year) after the introduction of the MFS than in the years immediately preceding the introduction. However, there are more visits and consultations after the introduction of the MFS than in prior years showing that, on average, beneficiaries in the fee-for-service sector had greater access to primary care than in previous years. The only area in which visits and consultations are down is in hospital settings, a trend attributable to lower hospitalization rates.

Procedures:
Table 4 shows rates of procedures per 1,000 beneficiaries. A few rates changed as the result of changing medical practice. For example, the cholecystectomy rate declined continually from 5.0 per 1,000 in 1990 to 1.7 per 1,000 in 1998. This was more than offset by the increase in laproscopic cholecystectomy. As a consequence, the combined cholecystectomy rate remained virtually unchanged between 1992 and 1998 (7.0 per 1,000 in each year). Another procedure that experienced a decline in rate was transurethral prostatectomy (TURP). The reason for the decline in TURP however is due to changes in the treatment of benign prostatic hypertrophy (PBH), from surgery to drug therapy, freezing, and "watchful waiting."

Among cardiovascular procedures, CABG rates increased only slightly from 1992 to 1998 and aneurysm repair remained unchanged. However, rates of thromboendarterectomy and PTCA increased by 8.3 percent and 10.4 percent per year, respectively. All major orthopedic procedures experienced increases in use rates from 1992 to 1998, ranging from a low of 1.1 percent per year for hip fracture repair to 5.3 percent per year for knee replacements. Among major eye procedures, there were increases in use rates for cataract removal/lens implants and treatment of retinal lesions and slight reduction in use rates for corneal transplants and treatment of retinal detachment. Endoscopy rates generally increased during the 1992 to 1998 time period, particularly arthroscopy (8.7 percent per year), colonoscopy (7.4 percent per year), and laryngoscopy (6.2 percent per year). Only sigmoidoscopy experienced a significant decline in use, from 42.1 procedures per 1,000 aged Medicare beneficiaries in 1992 to 32.8 in 1998. Use of tests were largely unchanged during these years except for cardiovascular stress tests, which more than doubled in rate from 59 per 1,000 aged Medicare beneficiaries in 1992 to 134 per 1,000 beneficiaries in 1998.[5]

Imaging Services:
Trends in use of imaging services are shown in Table 5. Imaging service use generally increased between 1992 and 1998. For standard imaging, chest x-ray use rates remained largely unchanged while x-rays of the musculoskeletal system increased by 3.3 percent per year. Breast imaging (primarily mammography) increased from 251 per 1,000 women in 1992 to 381 per 1,000 women in 1998, a 7.2 percent annual increase. Imaging services that increased by at least 10 percent per year included nuclear medicine, magnetic resonant imaging (MRI) of the brain, MRI - all other, echography of the heart, and cardiac catheterization.

Question 3: Has payment reform exacerbated racial differences in access to services that were reported in earlier analyses?

Tables 6 through 8 show the ratio of use rates for physicians' services for African-American aged beneficiaries compared to white aged beneficiaries for the years 1990 through 1998 (with preliminary data for 1999).

Evaluation and Management Services included in the MFS:
In 1990 the rate of visits and consultations for African-American Medicare beneficiaries was 4 percent lower than for white Medicare beneficiaries (Table 6)[6]. Both African-American and white Medicare beneficiaries experienced increases in visits and consultation rates between 1990 and 1998. Between 1990 and 1998, the underlying rates increased 19.0 percent for whites and 23.2 percent for African-American beneficiaries. Thus, between 1990 and 1998, the ratio of the total rate of visits and consultations between African-American and white Medicare beneficiaries increased from 0.96 to 0.99.

When the components (or site of service) that make up the overall rate are examined individually, certain differences between white and African-American Medicare beneficiaries are seen. In 1992 African-American Medicare beneficiaries received 14 percent fewer office visits[7] than did white beneficiaries. By 1998 this differential had increased to 19 percent. The office visit rate (data not shown) for African-American beneficiaries actually increased during these years, from 4.7 to 5.3 visits per person (13 percent increase). However, the white rate (data not shown) went from 5.5 visits per person to 6.6 visits (20 percent increase). That is, African-American beneficiaries experienced increased access to office visits during these years. However, because a faster rate of increase occurred among white beneficiaries, the differential between white and African-American beneficiaries also increased. The trend in access to primary care is examined in some more detail in the next section, using the Medicare Current Beneficiary Survey.

---

[5] The decrease in 1992 in allowed charges for electrocardiograms and the subsequent increase in 1994 corresponds to the provision that prohibited separate payment for EKG interpretation (if performed during or related to an evaluation and management service) and the subsequent repeal of that provision.

[6] The underlying race specific rates were age and sex adjusted. Tables 6 through 8 display the rate ratios, but not the underlying rates.

[7] The office based visit rate includes non-ER visits to hospital outpatient departments.

In other areas of visits and consultations, African-American beneficiaries increases in use rates were equal to or greater than white beneficiaries. For example, visits in the hospital setting decreased by 5 percent for white beneficiaries but increased by 3 percent for African-American beneficiaries, reflecting both higher hospitalization rates and longer lengths of stays for African-American beneficiaries. In 1998, the hospitalization rate for African-American beneficiaries was 16 percent greater than for white beneficiaries (394 and 339 stays per 1,000 beneficiaries, respectively), while lengths of stay for African-American beneficiaries were 15 percent greater than for white beneficiaries (6.8 days and 5.9 days per stay, respectively). During all these years, African-American beneficiaries had higher rates of emergency room visits and lower rates of specialist services (with the exception of psychiatry) than did whites, but these differences did not change after the implementation of the MFS.

Physician Procedures Included Under the MFS:
As described in the previous reports to Congress (1994, 1995, and 1996), there is wide variation in relative use of procedures by African-American compared to white beneficiaries (Table 7). Among the major general procedures, African-American beneficiaries receive fewer services than do white beneficiaries. In 1998, African-American to white use ratios range from 0.53 for disk surgery to 0.96 for colectomy. The lone exception was TURP where the African-American/white use ratio was 1.06 in 1998. Both African-American and white beneficiaries experienced decreases in TURP rates between 1992 and 1998 (38 percent and 42 percent, respectively). The decline in the rate of TURP coincides with the introduction of medical therapies such as a drug to treat the symptoms of benign prostatic hypertrophy, as well as increased recognition of the side effects of surgery. While many of the general major procedures experienced changes during this time period, the changes do not appear to be attributable to the implementation of the MFS, nor does there appear to be any deterioration of the already existing racial differences.

The large racial differences in cardiovascular procedures have been well documented (Gornick et al.:1996; Eggers and Greenberg:2000). While there has been some improvement during the 1992 to 1998 time period, there are still large differences between white and African-American Medicare beneficiaries. In 1992, African-American Medicare beneficiaries had a rate of CABG surgery that was 65 percent lower than the rate for white beneficiaries. By 1998, the rate for African-American beneficiaries was 54 percent lower. CABG rates increased for both white and African-American beneficiaries during these years (11 percent and 45 percent, respectively. Data not shown). The same pattern was seen for PTCA. In 1992, African-American beneficiaries had a rate that was 58 percent lower than the rate for white beneficiaries. By 1998, African-American beneficiaries had a rate that was 49 percent lower than the rate for white beneficiaries.

PTCA rates increased rapidly for both races during these years. The PTCA rate for whites was 79 percent greater in 1998 compared to 1992, while the rate among African-Americans more than doubled from 1992 to 1998 (data not shown). With the exception of pacemaker implant, the African-American/white use ratio was as great or greater in 1998 as in 1992, reflecting increases in relative use rates of African-American Medicare beneficiaries relative to white beneficiaries.

For the major orthopedic procedures, the African-American-white use ratios remained relatively constant throughout the 1992 to 1998 time period. Rates of hip fracture repair and hip replacement were for African-American beneficiaries less than one-half the rates among white beneficiaries, reflecting the lower rate of bone disease found among aged African-Americans compared to aged white persons.

For major eye procedures, the African-American/white rate ratios remained relatively constant between 1992 and 1998, with the exception of cataract removal/lens extraction, where the African-American/white ratio decreased from 0.78 in 1992 to 0.69 in 1998. However, as was the case with office visits, the reduced use ratio does not represent decreasing use by African-Americans. It is due to a more rapid increase among white beneficiaries than among African-American beneficiaries (23 percent and 8 percent, respectively).

Among ambulatory procedures, the largest change in use ratio was for lithotripsy, where the use ratio declined from 0.63 in 1992 to 0.56 in 1998. Once again, this did not represent a decline in use by African-American beneficiaries, but a more rapid increase among white beneficiaries (39 percent for whites and 22 percent for African-Americans. Data not shown).

Oncology service use rates such as radiation therapy were about 10 percent to 12 percent lower among African-Americans compared to white beneficiaries during these years. Although the disparity between African-Americans and whites did not increase during these years, the fact that cancer rates are 20 percent higher among aged African-Americans suggests that access to care has not improved in this area.

Relative rates of endoscopy procedures did not generally change during these years. There has been change in the underlying rates, however. More specifically, between 1992 and 1998, for both African-American and white Medicare beneficiaries, the rate of colonoscopy went up by over 50 percent, while the rate of sigmoidoscopy went down (17 percent for African-American beneficiaries and 22 percent for white beneficiaries). As described previously in this report, the rate of laparoscopic cholecystectomy increased dramatically as the rate of cholecystectomy decreased. The increase in laparoscopic cholecystectomy was greater for African-American beneficiaries (54 percent) than for white beneficiaries (39 percent).

Use of cardiovascular stress tests increased faster for African-American beneficiaries than for white beneficiaries. The use ratio increased from 0.56 in 1992 to 0.67 in 1998. This reflects an increase in the underlying use rate of 164 percent and 123 percent for African-Americans and whites, respectively (data not shown).

Imaging Services Included Under the MFS:

Most imaging services, with the exception of chest x-rays, increased for both white and African-American beneficiaries during 1992 to 1998. For example, breast imaging rates (mammography)[8] increased by 51 percent for white women and by 58 percent for African-American women, leaving a 34 percent disparity between the two groups in 1998, down slightly from the 37 percent disparity in 1992 (Table 8). MRI use doubled for both races during these years leaving the relative use rates unchanged. Echography of the heart also doubled for both races leaving the 10 percent higher rate among African-Americans also unchanged. Cardiac catherization increased by 181 percent among white beneficiaries and by 231 percent among African-American beneficiaries, raising the relative use rate from 0.57 to 0.68.

In summary, there have been few changes in the relative use rates between African-American and white beneficiaries since the introduction of the MFS. Relative to white beneficiaries, use rates have increased in cardiovascular care for such services as CABG, PTCA, cardiac catheterization, and stress tests. Relative use rates for African-American beneficiaries have decreased for cataract removal/lens implants, lithotripsy, and physician visits in the office setting. As noted above, the office visit rate actually increased for African-American beneficiaries during these years. Even so, the decrease in the rate **relative** to whites may be of some concern because primary care is typically thought of as the entrance point for most persons into the medical care system. Therefore, it was decided to look for other measures of primary care access.

Medicare Current Beneficiary Survey:

The Medicare Current Beneficiary Survey is a longitudinal panel survey of Medicare beneficiaries[9] that has been conducted continuously since 1991. This survey contains a number of standard questions related to access to care. Thus, it is possible to measure relative access to care as **perceived** by beneficiaries. Table 9 presents a comparison of the trends in a number of access measures for both African-American and white beneficiaries from 1991 through 1998. In all access to care measures, African-American beneficiaries report more access problems than white beneficiaries. About 5 to 7 percent of African-American beneficiaries report having had trouble getting health care within the last year compared to 3 percent of white beneficiaries. However, there was no trend for either race group during the period 1991 through 1998, and there remained a 3 percent differential between the two groups. There were decreasing percentages of both African-American and white beneficiaries reporting delayed access to health care due to cost. For African-American beneficiaries the decrease was from 15 to 17 percent in 1991 and 1992 to a 10 to 12 percent range in the 1995 to 1998 period. For white beneficiaries, the decrease was from 10 to 12 percent in 1991/1992 to a 6 to 7 percent range in 1996 to 1998. Again the racial disparities in access to care did not change. The third question was, "Did you have a medical condition but not see a doctor during the year?" A major reason for not seeing a doctor is because the respondent did not believe the problem to be serious. Therefore, Table 9 shows the percentage of patients not seeing a doctor, with and without the "problem not serious" qualification. African-American and white beneficiaries were equally likely to report not seeing a doctor because the problem was not serious. Thus, this qualification did not change the 3 to 4 percent differential between African-American and white beneficiaries in not seeing a doctor. Both groups had decreasing percentages of persons reporting not seeing a doctor, but the differential between the races remained about the same.

---

[8] The mammography screening benefit went into effect on January 1, 1991. Prior to that, mammography was only covered as a diagnostic benefit.

[9] Analyses in this section include beneficiaries in both the fee-for-service and managed care sectors.

Another measure of access captured in the Medicare Current Beneficiary Survey is the respondent's usual source of care. The results of this measure are shown in Table 10. During the 1991 to 1998 period, the most common usual source of care for both African-American and white beneficiaries was a doctor's office, about 70 to 74 percent for white beneficiaries and about 55 to 60 percent for African-American beneficiaries. There was no change for either group in this source of care during these years. African-American beneficiaries were much more likely to report a hospital outpatient department or emergency room as their usual source of care than were white beneficiaries (10 percent and 2 percent, respectively). There was about a 1 to 2 percent differential by race in the percent of beneficiaries who reported no usual source of care. During these years, about 7 to 10 percent of African-American beneficiaries and 6 to 9 percent of white beneficiaries report having no usual source of care. As with other measures of access from the Medicare Current Beneficiary Survey there was no trend in the racial disparity for this measure. In conclusion, perceived access problems as reported from survey data confirm greater access problems for African-American beneficiaries. However, relative differences are not changing and, with respect to access problems due to cost, both race groups report fewer problems during the 1991 to 1998 time period.

Trends in African-American/White Differences in Hospitalization Rates:

Previous data on procedures reflect services performed on an outpatient or inpatient basis. Data on surgical procedures performed only in the hospital are presented in Tables 11 through 14. These tables provide an additional perspective on the racial differences described above, showing procedure rates and 30-day post admission death rates. Racial differences in the 30-day post-admission death rate can be viewed as another measure of access to referral services, reflecting to some extent differences in severity of illness at the time the procedure was performed. Of course, there may be racial differences in post-admission death rates for reasons other than access barriers such as differences in patient behavioral characteristics or other quality of care factors.

Selected Heart and Vascular Procedures: As expected, hospital discharge data support the previously reported finding that there has been a narrowing of the racial difference in the rates for both CABG and PTCA (Table 11)[10]. In 1990, African-American beneficiaries were 35 percent less likely to receive a cardiac catheterization than were white beneficiaries (8.9 and 13.8 procedures per 1,000 beneficiaries, respectively). Between 1990 and 1998, the rate of cardiac catheterization increased by 78 percent for African-American beneficiaries and 48 percent for white beneficiaries, reducing the disparity to 22 percent. The same pattern of reduced disparity occurred for PTCA, CABG, and carotid endarterectomy. However, the disparities are still great with African-American beneficiaries only about one-half as likely to receive either a PTCA or a CABG and only one-third as likely to receive carotid endarterectomy. In 1990, African-American beneficiaries had higher post admission mortality rates than white beneficiaries, ranging from 16 percent higher for PTCA to 34 percent higher for CABG. By 1998, mortality for African-Americans was lower for PTCA and the difference for CABG was greatly reduced to 7 percent. The racial differential in mortality increased slightly for carotid endarterectomy although the rate declined for both white and African-American beneficiaries. In summary, the data suggest that both access to, and outcomes following, heart and vascular procedures have improved for African-American beneficiaries compared to white beneficiaries.

Selected Orthopedic and Back Procedures: For both African-American and white beneficiaries, the rates for most of the orthopedic and back procedures increased between 1990 and 1998 by comparable amounts (Table 12). Rates for African-American beneficiaries for most of these procedures remained at about one-half that of white beneficiaries. The 30-day post admission mortality rates did not change much. However, the underlying mortality rates for many of these procedures are sufficiently low (1 or 2 percent) that small changes resulted in large changes in the African-American to white ratio. For example, post admission mortality for whites for excision of disc increased from 6.6 per 1,000 admissions to 7.7 per 1,000 admissions while mortality among African-Americans decreased from 15.5 per 1,000 admissions to 5.9 per 1,000 admissions resulting in a reduction in the mortality ratio from 2.35 to 0.76. In 1998, African-American beneficiaries had higher mortality rates for three procedures (total hip replacement, laminectomy, and spinal fusion), lower mortality for three procedures (reduction of fracture of femur, total knee replacement, and excision of disc) and equal mortality for other arthroplasty of hip compared to white beneficiaries. In summary, the data suggest that access and outcomes of orthopedic procedures for African-American beneficiaries compared to white beneficiaries remained essentially unchanged during these years.

Selected General Surgical Procedures. Most of the selected general surgical procedures in Table 13 show declines in procedure rates, reflecting increased use of outpatient settings for these procedures. In all cases, the African-American to white ratios increased. Because it is likely that the less severe cases were moved to the outpatient setting, the mortality rate increases shown in Table 13 probably reflect increasing case severity. However, the mortality rates for

---

[10] Procedure rates in these tables are not necessarily consistent with those in earlier tables because these are based on inpatient claims whereas previous tables were based on physician claims. Although the physician analyses attempted to exclude multiple surgeons for the same inpatient stay, some duplication occurred.

African-American beneficiaries were higher than the white rates in 1998, consistent with the differentials in 1990.

Unlike the procedures included in Table 13, Table 14 includes two surgical procedures that African-American beneficiaries undergo more often than white beneficiaries. Moreover, both of these procedures are associated with a less than desirable outcome of a chronic illness. For example, the rate for African-American beneficiaries of amputation of all or part of the lower limb, frequently done because of complications of diabetes, is more than three times greater than the rate for white beneficiaries.

The higher rate of amputation in the African-American population cannot be fully explained by their higher prevalence of diabetes (Gornick et al, 1996). Between 1991 and 1998, the rate of amputation increased by 13 percent for white beneficiaries and by 21 percent for African-American beneficiaries. While African-American beneficiaries have a higher procedure rate than white beneficiaries, they also had a 23 percent lower 30-day post-admission mortality rate in both 1991 and 1998. The lower post amputation mortality rate among African American beneficiaries differs from other surgical procedures where African American rates were higher than white rates. This would be due to differing severity levels at the time of amputation, but this study does not have sufficient data to address this issue.

Excisional debridement is the care of wounds often related to diabetes, decubitus ulcers, and peripheral vascular disease. Hospitalization for excisional debridement for African-American beneficiaries remained at 2.6 times the rate for white beneficiaries from 1991 to 1998. Post admission mortality rates for African-American beneficiaries were 28 percent higher than for whites in 1991 and 18 percent higher in 1998.

Question 4: **Are the impacts of the MFS on physicians' practices similar to earlier impacts detected?**

In the previous reports to Congress, HCFA monitored physician practice access indicators based on data from a physician sample (the Part B Physician Sample File). The physician data in previous reports to Congress covered 35 states and the District of Columbia. In this 2001 report to Congress, the physician data has been expanded to include all 50 States and the District of Columbia. Data prior to 1995 are considered to be somewhat unreliable; thus the tables in this section reflect the years 1995 through 1999.[11]

Table 15 shows aggregate physician supply in the Medicare fee-for-service sector from 1995 through 1999. In 1995 there were 460,700 physicians who billed for Medicare covered services on a fee-for-service basis. By 1998 this number had increased to 478,123, a total increase of 3.8 percent. However, during this time the number of Medicare beneficiaries enrolled in capitated managed care plans increased rapidly, from 4.0 million in 1995 to 7.2 million in 1998.

---

[11] Data for 1999 were incomplete at the time of this report, including updates only through the end of the calendar year. Other years were updated through June of the following year. Consequently physician totals may be somewhat underestimated for 1999.

Consequently, the number of Medicare beneficiaries in the fee-for-service sector decreased by 6.2 percent, from 33.1 million to 31.0 million. Therefore, the number of fee-for-service physicians per 1,000 fee-for-service beneficiaries increased from 13.9 in 1995 to 15.4 in 1998, a 10.7 percent increase. With more physicians and fewer beneficiaries to care for, the average Medicare caseload per physician also declined slightly, from 388 patients per physician in 1995 to 383 per physician in 1998[12]. Average Medicare payments per physician increased from $67,095 in 1995 to $67,885 in 1998, a 1.2 percent increase.

Tables 16 through 18 show physician practice rates for primary care, surgical specialties and medical specialties, respectively[13]. Primary care physicians comprise about 29 percent of all physicians serving Medicare beneficiaries. The number of primary care physicians increased from 135,117 in 1995 to 140,896 in 1998, a 4.3 percent increase in absolute numbers and a 11.2 percent increase in physicians per 1,000 fee-for-service Medicare beneficiaries. Average caseload per physician decreased by 6.3 percent, from 316 in 1995 to 296 in 1998, but payments per physician increased by 1.9 percent from $49,861 in 1995 to $50,796 in 1998. There are three specialty groupings that comprise primary care physicians; general practice, family practice, and internal medicine. Although there was an overall increase in the number of primary care physicians, there was a 22 percent decrease in general practice which was offset by increases in family practice and internal medicine practitioners. This shift may be more apparent than real. In this analysis, physicians were categorized into specialties based on billing patterns. A physician could have billed primarily as general practice in one year and primarily as family practice in a subsequent year, thus decreasing the number of general practitioners and increasing the number of family practice doctors, with no real change in primary care physician supply.

Surgical specialties as a group and 6 selected surgical specialties are shown in Table 17. Surgical specialties account for about 25 percent of all doctors serving Medicare beneficiaries in the fee-for-service sector. The number of surgical specialty physicians increased from 114,229 in 1995 to 115,990 in 1998, a 1.5 percent increase (an 8.3 percent increase in the physician to beneficiary population ratio). Consistent with the decreases in MFS payment structure for procedures, total Medicare payments to surgical specialties decreased by 8.4 percent ($9.8 billion in 1995 and $9.0 billion in 1998) and per physician payments decreased by 9.8 percent ($85,822 per surgical specialist in 1995 and $77,409 in 1998). Payment patterns varied greatly by surgical specialty. For example, obstetrics/gynecology specialists accounted for 24 percent of all surgical specialists in 1998 but only 3 percent of total surgical specialist payments. Average caseloads for obstetrics/gynecology specialists are low (83 persons per physician in 1998) as are average Medicare payments ($9,372 per physician in 1998).

---

[12] Physicians can provide services both in fee-for-service and under contract with managed care organizations. The increased level of participation of managed care in Medicare during the time period covered in this report has probably increased the number of physicians with both fee-for-service and managed care activity and the level of activity in managed care. Thus, because managed care activity is not captured by the billing data included in this report, the caseload numbers may underestimate actual physician activity. It should also be noted that the trend toward increasing managed care enrollment has changed recently. The proportion of Medicare beneficiaries enrolled in managed care declined from about 17 percent of the Medicare population in 1999 to about 16 percent in 2000. Preliminary data for 2001 suggest a continuation of this decline.

[13] The full listing of specialties and how they were categorized into larger groupings is shown in appendix A.

At the other end of the scale are ophthalmologists and urologists. Ophthalmologists have high caseloads and payments per physician. However, due to reductions in payment levels, average payments to ophthalmologists decreased by 20 percent during these years, from $194,123 in 1995 to $150,306 in 1998. As a result, ophthalmologists' share of payments to all physicians decreased from 9.7 percent in 1995 to 7.5 percent in 1998. Average payments to urologists, on the other hand, increased by 8.5 percent during these years, from $163,177 to $177,040. It should be noted, of course, that these figures do not represent payments to physicians from all sources. The elderly represent a small part of the work load of obstetricians and a large part of the work load of ophthalmologists.

Medical specialists account for about 22 percent of Medicare fee-for-service billing physicians. There was a 4.7 percent increase in the total number of medical specialists between 1995 and 1998 (100,315 and 105,037, respectively). Total payments to medical specialists increased by 17.0 percent for an average increase per physician of 11.7 percent ($84,229 in 1995 and $94,118 in 1998). As was the case with surgical specialists, caseloads and payments per physician reflected Medicare's share of the physician specialist workload. Cardiologists had a Medicare caseload of 905 patients in 1998 and average Medicare payments of $188,763 in 1998. Caseload was down 3.9 percent from 1995 but average payment was up by 3.9 percent. There were many more psychiatrists serving Medicare beneficiaries than there were cardiologists but their overall impact on the program is much less. Psychiatrists see about one-tenth as many beneficiaries as do cardiologists and payments per psychiatrists were only $21,709 in 1998. Thus, while psychiatrists accounted for 5.9 percent of all physicians who billed for services in 1998, they accounted for only 1.9 percent of total physician payments.

In summary, the number of physicians providing services in the fee-for-service sector for Medicare continues to increase. The increases are even greater when considered in light of the decreasing number of Medicare beneficiaries eligible for receiving care in fee-for-service.

The data presented in tables 16 through 18 were created from a physician access monitoring system recently developed by HCFA. The system tracks physician Medicare billing patterns in the fee-for-service market. The system is designed to assess the number of practicing physicians and the volume of services provided in small areas (individual counties or group of counties) over time. The system is used to provide empirical evidence of physician behavior in small areas throughout the country and to help determine if beneficiary access to care is being compromised by changes in the number of practicing physicians. Examination of physician supply rates for specific small areas has not revealed access problems.

CONCLUSIONS

The impact of the MFS has largely been to shift payments from procedural categories of services to management and evaluation services. Although the shift was most noticeable in the first years following the implementation of the MFS, the trend has continued through 1998. Adoption of resource based practice expense RVUs will continue this trend through 2002. Access to care has not been adversely affected by the MFS. For most kinds of physicians' services, utilization rates have increased since the implementation of the MFS. As shown, there are disparities in utilization and access measures between African-American and white beneficiaries. Previous reports showed disparities for other vulnerable groups. However, these disparities existed prior to MFS and it does not appear that the MFS has exacerbated these differences. Both white and African-American beneficiaries report fewer economic barriers to receiving care than they did prior to the MFS. Finally, physician behavior is largely unchanged as a result of the MFS. While the average caseload for fee-for-service patients has been declining in recent years, there is no evidence that physicians are reducing caseload as a result of the MFS. The declining caseload is due to an increase in the number of physicians providing services to Medicare beneficiaries and a decrease in the number of Medicare beneficiaries enrolled in the fee-for-service sector.

Future Activities

Although this is the last report to Congress, HCFA will continue to monitor access to health care through a number of activities. Among these is HCFA's participation in former President Clinton's Initiative to eliminate racial disparities in health. The Department of Health and Human Services has set national goals established to eliminate health disparities in six areas by the year 2010: infant mortality; cancer screening and management; cardiovascular disease; diabetes; HIV/AIDS rates; and child and adult immunization levels. HCFA has initiated a number of activities aimed at achieving these goals, including a national project to reduce health care disparities through the Peer Review Program, a health care disparities research initiative, and cultural competency programs.

HCFA is also working to assure quality of care through the Peer Review Organization (PRO) program. PROs began to operate under the 6th scope of work during the second half of 1999 and the first quarter of 2000. The 6th round contract shifts PRO emphasis to national priorities with focus on clinical improvement, payment accuracy, and beneficiary protection. The contract also includes provisions for objective measurement of PRO performance through performance-based service contracting. Under the National Quality Priorities, PROs will focus on six clinical priorities that HCFA has determined to have a high impact on Medicare beneficiaries, where the process measures are inked to outcomes, where room for improvement exists, and where PROs have had experience with the topic. These include Acute Myocardial Infarction, Heart Failure, Diabetes, Breast Cancer, Pneumonia, and Stroke. In addition, PROs will embark on local quality improvement projects focussing on three areas: quality improvement projects in non-hospital settings, projects designed to reduce the disparity of care received by members of disadvantaged groups and all other beneficiaries in the PRO's State, and projects in response to local interests and needs. PROs will also offer assistance in quality improvement projects required by QISMC (see discussion below) to every M+C Plan in their State.

In response to the requirements of the Balanced Budget Act of 1997 (BBA), as amended by the Balanced Budget Refinement Act (BBRA) of 1999, HCFA has developed the Quality Improvement System for Managed Care (QISMC). QISMC standards and guidelines are key tools for use by HCFA and States in implementing the quality assurance provisions of the BBA and BBRA. The QISMC standards and guidelines are intended to achieve four major goals:

1. To clarify the responsibilities of HCFA and the States in promoting quality as value-based purchasers of services for vulnerable populations.
2. To promote opportunities for partnership among HCFA and the States and other public and private entities involved in quality improvement efforts.
3. To develop a coordinated Medicare and Medicaid quality oversight system that would reduce duplicate or conflicting efforts, and send a uniform message on quality to organizations and consumers.
4. To make the most effective use of available quality measurement and improvement tools, while allowing sufficient flexibility to incorporate new developments in the rapidly advancing state of the art.

REFERENCES

Health Care Financing Administration. (1994). Fourth Annual Report to Congress: Monitoring the Impact of Medicare Physician Payment Reform on Utilization and Access. HCFA Pub. No. 03358, September 1994.

Health Care Financing Administration. (1995). Fifth Annual Report to Congress: Monitoring the Impact of Medicare Physician Payment Reform on Utilization and Access. HCFA Pub. No. 03378. Fall 1995.

Health Care Financing Administration. (1996). Sixth Annual Report to Congress: Monitoring the Impact of Medicare Physician Payment Reform on Utilization and Access. (Check date).

Gornick ME, Eggers PW, Reilly TW, Mentnech RM, Fitterman LK, Kucken LE, Vladeck BC Effects of Race and income on Mortality and Use of Services among Medicare beneficiaries. N Engl J Medicare. 1996. Sep 12; 335(11) 791-9.

Eggers, PW, LG Greenberg, "Racial and Ethnic Differences in Hospitalization Rates Among Aged Medicare Beneficiaries in 1998" Health Care Financing Review in press.

Appendix A

Physician Specialty Coding

Primary Care

01	General Practice
08	Family Practice
11	Internal Medicine

Surgical Specialties

02	General Surgery
04	Otololaryngology
07	Dermatology
14	Neurosurgery
16	Obstetrics/Gynecology
17	Ophthalmology, Otology, Laryngology, Rhinology (Osteopaths only)
18	Ophthalmology
20	Orthopedic Surgery
23	Peripheral Vascular Disease, Medical or Surgical (Osteopaths only)
24	Plastic and Reconstructive Surgery
28	Colorectal Surgery
33	Thoracic Surgery
34	Urology
40	Hand Surgery
77	Vascular Surgery
78	Cardiac Surgery
85	Maxillofacial Surgery
91	Surgical Oncology

Medical Specialties

03	Allergy/Immunology
06	Cardiology
07	Dermatology
10	Gastroenterology
13	Neurology
26	Psychiatry
27	Psychiatry, Neurology (Osteopaths only)
29	Pulmonary Disease
37	Pediatric Medicine
38	Geriatric Medicine
39	Nephrology
44	Infectious Disease
46	Endocrinology
66	Rheumatology
76	Peripheral Vascular Disease
82	Hematology
83	Hematology/Oncology
84	Preventive Medicine
86	Neuropsychiatry
90	Medical Oncology

98	Gynecology

Other Specialties

05	Anesthesiology
21	Pathologic Anatomy, Clinical Pathology (Osteopaths only)
22	Pathology
25	Physical Medicine and Rehabilitation
30	Diagnostic Radiology
31	Roentgenology, Radiology (Osteopaths only)
32	Radiation Therapy (Osteopaths only)
36	Nuclear Medicine
79	Addiction Medicine
81	Critical Care
92	Radiation Oncology
93	Emergency Medicine
94	Interventional Radiology
99	Unknown Physician Specialty

Non-MD/Doctor of Osteopathy

12	Osteopathic Manipulative Therapy
19	Oral Surgery (Dentists only)
35	Chiropractic
41	Optometry
42	Certified Nurse Midwife
43	CRNA, Anesthesia Assistant
45	Mammography Screening Center
48	Podiatry
49	Ambulatory Surgical Center
50	Nurse Practitioner
51	Medical Supply Company with Certified Orthotist
52	Medical Supply Company with Certified Prosthetist
53	Medical Supply Company with Certified Prosthetist-Orthotist
54	Medical Supply Company Not Included
55	Individual Certified Orthotist
56	Individual Certified Prosthetist
57	Individual Certified Prosthetist-Orthotist
58	Individuals Not Included in 55, 56, or 57
59	Ambulance Service Supplier
60	Public Health or Welfare Agency
61	Voluntary Health or Charitable Agencies
62	Psychologist
63	Portable X-ray Supplier
64	Audiologist
65	Physical Therapist
67	Occupational Therapist
68	Clinical Psychologist
69	Clinical Laboratory
71	Diagnostic X-ray
72	Diagnostic Laboratory
73	Physiotherapy

74	Occupational Therapy
75	Other Med Care
80	Licensed Clinical Social Worker
87	All Other Suppliers
88	Unknown Supplier/Provider Specialty
89	Certified Clinical Nurse Specialist
95	Independent Physiological Laboratory
96	Optician
97	Physician Assistant

Multi-specialty Group

70	Multi specialty Clinic or Group Practice

Table 1
Medicare Allowed Charges for Physician Services
Paid Under the Medicare Fee Schedule: Aged and Disabled
By Major Type of Service Category: 1990 to 1999

Allowed Charges (in millions)

Year	Total	Visits and Consults	Procedures	Imaging
1990	$29,922	$11,631	$13,902	$4,389
1991	33,038	13,276	15,132	4,629
1992	32,775	14,371	13,760	4,644
1993	34,086	15,603	13,758	4,726
1994	38,011	17,597	15,524	4,890
1995	41,084	19,422	16,690	4,972
1996	40,868	19,522	16,442	4,904
1997	41,238	20,064	16,272	4,902
1998	42,230	21,002	15,697	5,531
1999*	41,544	21,018	14,984	5,543
Percent Change				
1990-91	10.4	14.1	8.8	5.5
1991-92	-0.8	8.2	-9.1	0.3
1992-93	4.0	8.6	0.0	1.8
1993-94	11.5	12.8	12.8	3.5
1994-95	8.1	10.4	7.5	1.7
1995-96	-0.5	0.5	-1.5	-1.4
1996-97	0.9	2.8	-1.0	-0.1
1997-98	2.4	4.7	-3.5	12.8
1998-99*	N.A.	N.A.	N.A.	N.A.

* = Data for 1999 are incomplete (bills processed through 03/31/2000)

Source: 5 percent BMAD for 1990 and 1991. 1992 and later - Monitoring System

N.A. = Not Applicable due to incomplete data

Table 2

Medicare Per Capita Allowed Charges for Physician Services Paid Under the Medicare Fee Schedule: Aged and Disabled By Major Type of Service Category: 1990 to 1999

Allowed Charges per Beneficiary [1]

Year	Total	Visits and Consults	Procedures	Imaging
1990	$985	$383	$458	$144
1991	$1,071	$430	$491	$150
1992	$1,046	$459	$439	$148
1993	$1,074	$491	$433	$149
1994	$1,191	$551	$486	$153
1995	$1,292	$611	$525	$156
1996	$1,303	$622	$524	$156
1997	$1,347	$656	$532	$160
1998	$1,413	$703	$525	$185
1999*	$1,402	$709	$505	$187
		Percent Change		
1990-91	8.8	12.4	7.2	3.9
1991-92	-2.3	6.6	-10.5	-1.2
1992-93	2.6	7.1	-1.3	0.4
1993-94	10.9	12.2	12.2	2.9
1994-95	8.5	10.8	7.9	2.0
1995-96	0.9	1.9	-0.1	0.0
1996-97	3.4	5.3	1.4	2.4
1997-98	4.9	7.2	-1.2	15.5
1998-99*	N.A.	N.A.	N.A.	N.A.

* = Data for 1999 are incomplete (bills processed through 03/31/2000)

Source: 5 percent BMAD for 1990 and 1991. 1992 and later - Monitoring System

Medicare Denominator files: 1990 to 1999 (excludes HMO enrollees)

N.A. = Not Applicable due to incomplete data

[1] Per Medicare beneficiary in the fee-for-service sector

Table 3

Medicare Physician Services Paid Under the Medicare Fee Schedule

Number of Visits and Consultations per 1,000 Aged Medicare Beneficiaries: 1990 to 1999

Service Category	1990	1992	1994	1996	1998	1999*	Average Annual Percent Change 1990-92	Average Annual Percent Change 1992-98
Rate per 1,000 beneficiaries [1]								
Total**	11,264	12,156	12,706	13,242	13,442	13,169	3.9	1.7
Office Visits	4,949	5,391	5,740	5,954	6,454	6,266	4.4	3.0
New	343	371	370	373	408	402	4.0	1.6
Established	4,606	5,021	5,370	5,581	6,046	5,864	4.4	3.1
Hospital Visits	3,293	3,152	3,059	2,953	3,008	2,919	-2.2	-0.8
Initial	272	264	283	289	298	285	-1.6	2.0
Subsequent	2,711	2,776	2,676	2,564	2,622	2,552	1.2	-0.9
Critical Care	310	113	100	100	88	82	-39.7	-4.1
Emergency Room	344	349	382	407	428	416	0.8	3.5
Home/Nursing Ho	523	591	649	715	754	690	6.2	4.2
Home	51	42	44	47	46	44	-8.9	1.4
Nursing Home	473	548	605	668	708	646	7.7	4.4
Specialists	1,377	1,594	1,782	2,035	2,005	1,936	7.6	3.9
Pathology	377	473	492	524	549	534	12.1	2.5
Psychiatry	156	236	314	359	342	311	23.2	6.4
Ophthalmology	704	675	756	832	783	774	-2.1	2.5
Other	141	211	221	320	332	317	22.3	7.9
Consultation	428	662	688	749	792	749	24.4	3.0

* = 1999 data are incomplete (bills processed through 03/31/2000)

Source: 5 percent BMAD for 1990 and 1991. 1992 and later - Monitoring System

Medicare Denominator files: 1990 to 1999 (excludes HMO enrollees)

1 Rates are age and sex adjusted to the 1994 Medicare Aged population

** = Total includes Chiropractic Services

Table 4

Medicare Physician Services Paid Under the Medicare Fee Schedule

Number of Procedures per 1,000 Aged Medicare Beneficiaries: 1990 to 1999

							Average Annual Percent Change	
Service Category	1990	1992	1994	1996	1998	1999	1990-92	1992-98
					Rate per 1,000 beneficiaries [1]			
Major Procedure: General								
Breast **	4.0	4.2	4.1	4.0	4.4	4.3	2.2	0.8
Colectomy	4.8	4.8	4.7	5.1	5.5	5.1	-0.4	2.4
Cholecystectomy	5.0	3.1	2.4	2.1	1.9	1.7	-21.3	-8.2
TURP **	19.9	18.2	13.6	12.4	10.7	9.8	-4.4	-8.5
Hysterectomy **	2.4	3.4	3.3	3.2	3.2	2.8	17.7	-0.9
Disk Surgery	3.6	4.9	3.1	3.4	4.1	4.0	17.3	-3.0
Other	58.1	63.7	70.2	77.4	79.9	70.2	4.7	3.9
Major Procedure: Cardiovascular								
CABG	4.8	6.1	5.8	6.9	6.8	6.6	12.4	1.9
Aneurysm	1.1	1.2	1.2	1.2	1.2	1.1	2.8	0.0
Thromboendarterectomy	1.6	2.3	2.7	3.7	3.8	3.6	22.3	8.3
PTCA	3.8	6.4	6.5	8.8	11.5	12.1	28.7	10.4
Pacemaker	6.4	6.6	6.8	7.5	8.4	8.4	1.7	4.0
Other	64.9	79.4	107.7	123.9	134.3	131.3	10.6	9.2
Major Procedure: Orthopedic								
Hip Fracture Repair	7.0	7.3	7.8	7.9	7.8	7.4	2.0	1.1
Hip Replacement	3.4	3.7	3.7	4.0	4.2	3.9	4.9	1.9
Knee Replacement	3.5	4.4	4.9	5.9	6.1	5.8	12.5	5.3
Other	13.5	15.1	16.0	17.7	19.9	19.4	5.8	4.7

* = 1999 data are incomplete (bills processed through 03/31/2000)

Source: 5 percent BMAD for 1990 and 1991. 1992 and later - Monitoring System

Medicare Denominator files: 1990 to 1999 (excludes HMO enrollees)

1 Rates are age and sex adjusted to the 1994 Medicare Aged population

** Breast and hysterectomy rates are based on female enrollment

TURP rates are based on male enrollment

Table 5

Medicare Physician Services Paid Under the Medicare Fee Schedule

Number of Imaging Services per 1,000 Aged Medicare Beneficiaries: 1990 to 1999

							Average Annual Percent Change	
Service Category	1990	1992	1994	1996	1998	1999	1990-92	1992-98
					Rate per 1,000 beneficiaries[1]			
Standard Imaging								
Chest	1,052	1,107	1,104	1,088	1,069	1,016	2.6	-0.6
Musculoskeletal	587	638	675	721	776	749	4.3	3.3
Breast **	196	251	261	274	381	387	13.2	7.2
GI Tract	106	99	87	74	68	59	-3.2	-6.1
Nuclear Medicine	113	131	124	148	238	262	7.9	10.4
Other	236	304	305	365	290	251	13.5	-0.8
Advanced Imaging								
Cat Scan - Head	77	83	86	96	107	105	3.6	4.3
Cat Scan - Other	115	142	153	177	216	228	11.3	7.3
MRI - Brain	13	19	23	28	36	38	20.0	11.1
MRI - Other	14	22	38	42	53	57	25.5	16.2
Sonography								
Echo-Eye	45	52	54	60	65	63	7.5	3.6
Echo-Abdomen/Pelvis	91	107	115	123	123	115	8.4	2.3
Echo- Heart	138	197	286	345	410	420	19.6	13.0
Carotid Artery	35	46	52	64	72	72	15.1	8.0
Prostate **	10	26	25	22	24	25	57.2	-0.8
Other	21	34	50	66	94	103	26.4	18.3
Imaging/Procedure								
Cardiac Catheterization	24	46	97	121	131	131	38.9	18.9
Procedure, Other	34	51	50	57	70	81	23.2	5.5

* = 1999 data are incomplete (bills processed through 03/31/2000)

Source: 5 percent BMAD for 1990 and 1991. 1992 and later - Monitoring System

Medicare Denominator files: 1990 to 1999 (excludes HMO enrollees)

[1] Rates are age and sex adjusted to the 1994 Medicare Aged population

** Breast Imaging rates are based on female enrollment; Prostate Imaging rates are based on male enrollment

** Prostate Imaging rates are based on male enrollment

Table 6

Medicare Physician Services Paid Under the Medicare Fee Schedule
Ratio of African American to White Visit and Consultation
Use Rates per 1,000 Aged Medicare Beneficiaries: 1990 to 1999

Service Category	1990	1992	1994	1996	1998	1999*
	Ratio of African American Rate to White Rate [1]					
Total	0.96	0.97	0.97	0.97	0.99	0.97
Office Visits	0.88	0.86	0.84	0.82	0.81	0.79
New	0.71	0.72	0.71	0.70	0.69	0.67
Established	0.89	0.87	0.85	0.83	0.81	0.80
Hospital Visits	1.22	1.30	1.34	1.38	1.41	1.41
Initial	1.07	1.16	1.17	1.20	1.23	1.21
Subsequent	1.26	1.32	1.35	1.39	1.43	1.42
Critical Care	0.99	1.29	1.48	1.58	1.62	1.63
Emergency Room	1.38	1.39	1.41	1.40	1.39	1.37
Home/Nursing Home	0.98	1.10	1.18	1.28	1.37	1.40
Home	0.74	0.80	1.04	1.30	1.81	2.02
Nursing Home	1.01	1.12	1.19	1.27	1.34	1.36
Specialists	0.73	0.74	0.77	0.77	0.74	0.73
Pathology	0.58	0.59	0.60	0.60	0.57	0.56
Psychiatry	0.90	0.99	1.04	1.14	1.07	0.98
Ophthalmology	0.88	0.89	0.89	0.89	0.88	0.87
Other	0.27	0.35	0.35	0.38	0.40	0.43
Consultation	1.05	1.08	1.09	1.10	1.10	1.10

* = 1999 data are incomplete (bills processed through 03/31/2000)

Source: 5 percent BMAD for 1990 and 1991. 1992 and later - Monitoring System

Medicare Denominator files: 1990 to 1999 (excludes HMO enrollees)

[1] Rates are age and sex adjusted to the 1994 Medicare Aged population

Table 7

Medicare Physician Services Paid Under the Medicare Fee Schedule

Ratio of African American to White Procedure

Use Rates per 1,000 Aged Medicare Beneficiaries: 1990 to 1999

Service Category	1990	1992	1994	1996	1998	1999*
	Ratio of African American Rate to White Rate [1]					
Major Procedure: General						
Breast **	0.86	0.68	0.68	0.73	0.70	0.71
Colectomy	0.77	0.85	0.89	0.92	0.96	0.93
Cholecystectomy	0.62	0.72	0.76	0.80	0.86	0.87
TURP **	0.97	1.00	1.07	1.09	1.06	1.02
Hysterectomy **	0.59	0.58	0.61	0.62	0.65	0.63
Disk Surgery	0.47	0.50	0.50	0.51	0.53	0.49
Other	0.84	0.89	0.90	0.92	0.95	0.91
Major Procedure: Cardiovascular						
CABG	0.23	0.35	0.41	0.44	0.46	0.47
Aneurysm	0.31	0.35	0.37	0.37	0.39	0.22
Thromboendarterectomy	0.28	0.30	0.31	0.33	0.34	0.37
PTCA	0.33	0.42	0.47	0.49	0.51	0.56
Pacemaker	0.75	0.79	0.77	0.78	0.77	0.76
Other	0.98	1.03	0.98	1.00	1.09	1.13
Major Procedure: Orthopedic						
Hip Fracture Repair	0.36	0.41	0.41	0.42	0.43	0.43
Hip Replacement	0.45	0.49	0.48	0.49	0.48	0.50
Knee Replacement	0.61	0.63	0.61	0.62	0.64	0.62
Other	1.02	0.98	0.98	0.94	0.92	0.89

* = 1999 data are incomplete (bills processed through 03/31/2000)

Source: 5 percent BMAD for 1990 and 1991. 1992 and later - Monitoring System

Medicare Denominator files: 1990 to 1999 (excludes HMO enrollees)

[1] Rates are age and sex adjusted to the 1994 Medicare Aged population

** Breast and hysterectomy rates are based on female enrollment

TURP rates are based on male enrollment

Table 8

Medicare Physician Services Paid Under the Medicare Fee Schedule
Ratio of African American to White Imaging Service
Use Rates per 1,000 Aged Medicare Beneficiaries: 1990 to 1999

Service Category	1990	1992	1994	1996	1998	1999*
	Ratio of African American Rate to White Rate [1]					
Standard Imaging						
Chest	1.04	1.07	1.10	1.10	1.10	1.09
Musculoskeletal	0.80	0.78	0.78	0.76	0.74	0.72
Breast **	0.60	0.63	0.68	0.69	0.66	0.65
GI Tract	1.06	1.08	1.09	1.10	1.09	1.07
Nuclear Medicine	0.96	0.93	0.95	0.87	0.77	0.76
Other	1.12	1.22	1.30	1.32	1.20	1.20
Advanced Imaging						
Cat Scan - Head	1.28	1.31	1.34	1.32	1.30	1.28
Cat Scan - Other	0.97	0.96	0.96	0.94	0.91	0.89
MRI - Brain	0.75	0.85	0.86	0.86	0.87	0.87
MRI - Other	0.70	0.72	0.68	0.70	0.71	0.68
Sonography						
Echo-Eye	0.87	0.84	0.82	0.76	0.72	0.71
Echo-Abdomen/Pelvis	1.16	1.13	1.11	1.08	1.08	1.06
Echo- Heart	1.09	1.11	1.12	1.11	1.09	1.08
Carotid Artery	0.80	0.79	0.79	0.76	0.74	0.73
Prostate **	0.70	0.79	1.06	1.12	1.04	1.01
Other	1.02	1.03	1.06	1.01	0.97	0.92
Imaging/Procedure						
Proc, Incl Card Cath	0.52	0.57	0.60	0.65	0.68	0.69
Proc Other	0.91	0.90	0.91	0.94	1.03	1.02

* = 1999 data are incomplete (bills processed through 03/31/2000)

Source: 5 percent BMAD for 1990 and 1991. 1992 and later - Monitoring System

Medicare Denominator files: 1990 to 1999 (excludes HMO enrollees)

[1] Rates are age and sex adjusted to the 1994 Medicare Aged population

** Breast Imaging rates are based on female enrollment

** Prostate Imaging rates are based on male enrollment

Table 9

Measures of Access to Care for African American and White Medicare Beneficiaries

Data from the Medicare Current Beneficiary Survey: 1991 through 1998

	Percent Reporting Difficulty							
	1991	1992	1993	1994	1995	1996	1997	1998
Trouble Gettting Health Care								
African American	5.8	7.2	5.9	7.0	5.7	5.8	5.3	5.7
White	3.5	3.3	3.0	3.3	3.3	3.1	3.3	3.2
Percentage Point Difference	2.3	3.9	2.9	3.8	2.4	2.7	2.0	2.5
Delayed Health Care due to Cost								
African American	17.8	15.2	14.6	15.1	12.3	11.9	12.3	10.1
White	12.9	11.0	9.5	9.3	8.6	7.3	6.7	6.3
Percentage Point Difference	5.0	4.2	5.1	5.8	3.7	4.6	5.5	3.8
Had Medical Condition But Did Not See Doctor								
African American	17.2	14.0	13.6	13.0	13.7	13.4	11.5	10.0
White	13.5	10.9	10.0	10.2	12.6	8.9	8.2	7.8
Percentage Point Difference	3.7	3.2	3.6	2.8	1.1	4.5	3.3	2.2
Had Medical Condition But Did Not See Doctor*								
African American	12.3	10.8	10.4	9.5	10.2	9.7	7.7	6.9
White	8.8	7.3	6.7	6.8	6.5	5.5	5.2	4.6
Percentage Point Difference	3.4	3.5	3.8	2.7	3.7	4.2	2.5	2.3

*(Excludes those who responded "problem was not serious" as reasons for not seeing doctor)

Table 10

Usual Source of Care for African American and White Medicare Beneficiaries

Data from the Medicare Current Beneficiary Survey: 1991 through 1998

	Percent Reporting This Source							
	1991	1992	1993	1994	1995	1996	1997	1998
Doctor's Office								
African American	55.4	57.2	60.5	61.1	61.1	58.4	60.7	56.5
White	69.3	70.9	71.8	71.8	73.0	74.7	74.1	70.4
Percentage Point Difference	-13.9	-13.7	-11.3	-10.7	-11.9	-16.3	-13.4	-13.9
Clinic								
African American	8.6	7.2	5.0	6.8	5.9	5.4	6.2	6.3
White	11.6	9.8	9.8	9.6	9.6	7.9	8.6	9.0
Percentage Point Difference	-3.0	-2.6	-4.8	-2.8	-3.7	-2.5	-2.4	-2.7
HMO								
African American	3.5	4.8	5.5	4.1	4.5	5.1	5.7	10.3
White	3.7	4.2	4.2	5.1	5.6	5.2	6.4	10.5
Percentage Point Difference	-0.2	0.6	1.3	-1.0	-1.1	-0.1	-0.7	-0.2
Hospital OPD/ER								
African American	11.1	11.3	11.2	10.4	11.0	10.8	10.9	9.8
White	3.1	2.5	2.2	2.0	1.8	1.5	1.4	1.1
Percentage Point Difference	8.0	8.8	9.0	8.4	9.2	9.3	9.5	8.7
All Other								
African American	10.6	10.0	8.9	9.8	9.9	10.3	8.7	9.8
White	4.3	3.7	3.4	4.0	3.6	3.9	3.2	3.2
Percentage Point Difference	6.3	6.3	5.5	5.8	6.3	6.4	5.5	6.6
None								
African American	10.8	9.5	9.0	7.8	7.7	10.0	7.8	7.3
White	8.1	9.0	8.6	7.5	6.8	6.8	6.0	5.8
Percentage Point Difference	2.7	0.5	0.4	0.3	0.9	3.2	1.8	1.5

Table 11

Hospitalization and Mortality Rates for Selected Heart and Vascular Procedures For African American and White Aged Medicare Beneficiaries: 1990 and 1998

	Procedure rate					30-day post-admission death rate			
	1990		1998		Change in Rate, 1990-98 (percent)	1990		1998	
	Rate/* 1,000	Black/ White Ratio	Rate/* 1,000	Black/ White Ratio		Rate/** 1,000	Black/ White Ratio	Rate/** 1,000	Black/ White Ratio
Cardiac catheterization									
White	13.8	0.65	20.4	0.78	48	na	na	na	na
Black	8.9		15.8		78	na	na	na	na
Percutaneous transluminal coronary angioplasty									
White	3.5	0.40	8.8	0.54	147	25.8	1.16	33.0	0.91
Black	1.4		4.7		235	29.9		30.1	
Coronary artery bypass graft ***									
White	4.4	0.37	5.0	0.47	14	44.4	1.34	48.1	1.07
Black	1.6		2.4		48	59.4		51.6	
Carotid endarterectomy									
White	1.7	0.30	3.7	0.34	114	18.8	1.22	14.4	1.26
Black	0.5		1.3		142	22.9		18.1	

Hospitalization and mortality rates are age adjusted to the total Medicare population

* per 1,000 enrollees. ** per 1,000 discharges

*** Due to an anomaly in the DRG coding system in 1990, the data in this table for coronary artery bypass grafts reflects 1991 and 1997, not 1990 and 1997.

na= Not applicable because cardiac catherization is a diagnostic procedure that is often followed by a surgical procedure

SOURCES: Data derived from the Medicare Provider Analysis and Review file and the Denominator File.

Table 12

Hospitalization and Mortality Rates for Selected Orthopedic and Back Procedures For African American and White Aged Medicare Beneficiaries: 1990 and 1998

	Procedure rate					30-day post-admission death rate			
	1990		1998		Change in Rate, 1990-98 (percent)	1990		1998	
	Rate/* 1,000	Black/ White Ratio	Rate/* 1,000	Black/ White Ratio		Rate/** 1,000	Black/ White Ratio	Rate/** 1,000	Black/ White Ratio
Reduction of fracture of femur									
White	4.9	0.42	5.5	0.47	14	59.1	0.77	55.8	0.92
Black	2.1		2.6		27	45.8		51.3	
Other arthroplasty of hip									
White	2.5	0.47	3.1	0.46	23	57.0	0.99	57.1	1.01
Black	1.2		1.4		21	56.6		57.6	
Total knee replacement									
White	3.2	0.62	5.4	0.67	68	5.7	1.52	4.5	0.90
Black	2.0		3.7		81	8.7		4.1	
Total hip replacement									
White	2.5	0.45	3.1	0.47	23	14.5	1.00	11.6	1.35
Black	1.1		1.5		30	14.5		15.6	
Laminectomy									
White	1.4	0.54	2.0	0.53	50	11.9	1.53	9.7	1.85
Black	0.7		1.1		47	18.2		18.0	
Excision of disc									
White	1.2	0.50	1.5	0.53	26	6.6	2.35	7.7	0.76
Black	0.6		0.8		34	15.5		5.9	
Spinal fusion									
White	0.5	0.61	1.2	0.64	161	19.1	1.08	19.7	1.27
Black	0.3		0.8		175	20.7		24.9	

Hospitalization and mortality rates are age adjusted to the total Medicare population

* per 1,000 enrollees. ** per 1,000 discharges

SOURCES: Data derived from the Medicare Provider Analysis and Review file and the Denominator File.

Table 13

Hospitalization and Mortality Rates for Selected Surgical Procedures

For African American and White Aged Medicare Beneficiaries: 1990 and 1998

	Procedure rate					30-day post-admission death rate			
	1990		1998		Change in Rate, 1990-98 (percent)	1990		1998	
	Rate/* 1,000	Black/ White Ratio	Rate/* 1,000	Black/ White Ratio		Rate/** 1,000	Black/ White Ratio	Rate/** 1,000	Black/ White Ratio
Prostatectomy									
White	22.5	0.91	10.1	1.13	-55	9.4	1.22	10.0	1.36
Black	20.5		11.4		-44	11.5		13.6	
Cholecystectomy									
White	5.3	0.63	4.7	0.80	-10	30.2	1.27	36.8	1.34
Black	3.3		3.8		15	38.3		49.1	
Repair of inguinal hernia									
White	2.4	0.70	0.9	0.95	-60	15.0	1.49	25.1	1.47
Black	1.7		0.9		-46	22.4		36.9	
Simple and RadicalMastectomy									
White	3.3	0.75	2.1	0.87	-35	5.0	1.34	5.8	1.81
Black	2.5		1.9		-24	6.7		10.5	
Hysterectomy									
White	3.4	0.64	3.4	0.69	0	7.5	2.22	11.7	2.05
Black	2.2		2.4		8	16.6		24.0	

Hospitalization and mortality rates are age adjusted to the total Medicare population

* per 1,000 enrollees. ** per 1,000 discharges

SOURCES: Data derived from the Medicare Provider Analysis and Review file and the Denominator File.

Table 14
Hospitalization and Mortality Rates for Selected Surgical Procedures
For African American and White Aged Medicare Beneficiaries: 1990 and 1998

	Procedure rate					30-day post-admission death rate			
	1991		1998		Change in Rate, 1991-98 (percent)	1991		1998	
	Rate/* 1,000	Black/ White Ratio	Rate/* 1,000	Black/ White Ratio		Rate/** 1,000	Black/ White Ratio	Rate/** 1,000	Black/ White Ratio
Amputation of lower limb									
White	1.7	3.43	1.9	3.68	13	93.3	0.77	86.9	0.77
Black	5.7		6.9		21	72.2		67.3	
Excisional Debridement									
White	2.5	2.60	2.8	2.58	11	79.0	1.28	73.9	1.18
Black	6.6		7.2		10	101.3		87.1	

Hospitalization and mortality rates are age adjusted to the total Medicare population

*per 1,000 enrollees. ** per 1,000 discharges.

SOURCES: Data derived from the Medicare Provider Analysis and Review file and the Denominator File.

Table 15

Total Medicare Billing Physicians, Average Medicare Caseload
Payments per Physicians, Physician to Population Ratio
and Total Medicare Payments: 1995 to 1999

All Physicians

Year	Number of Physicians	Medicare Caseload	Payments per Physician	Physicians per 1,000 Medicare Beneficiaries	Total Medicare Payments (in $millions)
1995	460,700	388	$67,095	13.9	$30,910
1996	469,915	387	$66,135	14.5	$31,078
1997	476,164	386	$66,706	15.0	$31,763
1998	478,123	383	$67,885	15.4	$32,457
1999*	474,106	360	$64,280	15.3	$30,476
Pct Chg 1995-98	3.8%	-1.3%	1.2%	10.7%	5.0%

* = Data for 1999 are incomplete (bills processed through 12/31/1999)

Sources: Provider Summary Files and Medicare Denominator Files (Aged and Disabled: excludes HMO)

Table 16

Total Medicare Billing Physicians, Average Caseload
Payments per Physicians, Physician to Population Ratio
and Total Medicare Payments: 1995 to 1999

Primary Care Physicians

Year	Number of Physicians	Medicare Caseload	Payments per Physician	Physicians per 1,000 Medicare Beneficiaries	Total Medicare Payments (in $millions)
Primary Care Physicians: Total					
1995	135,117	316	$49,861	4.1	$6,737
1996	136,712	311	$49,089	4.2	$6,711
1997	138,138	305	$49,792	4.4	$6,878
1998	140,896	296	$50,796	4.5	$7,157
1999	139,308	279	$47,368	4.5	$6,599
Pct Chg 1995-9	4.3%	-6.3%	1.9%	11.2%	6.2%
General Practice					
1995	22,425	260	$34,935	0.7	$783
1996	20,637	259	$35,168	0.6	$726
1997	18,720	256	$36,509	0.6	$683
1998	17,483	250	$38,181	0.6	$668
1999	15,700	232	$35,275	0.5	$554
Pct Chg 1995-9	-22.0%	-3.8%	9.3%	-16.9%	-14.8%
Family Practice					
1995	52,696	271	$34,615	1.6	$1,824
1996	54,446	265	$33,454	1.7	$1,821
1997	56,126	258	$33,681	1.8	$1,890
1998	57,799	250	$34,176	1.9	$1,975
1999	58,060	237	$31,976	1.9	$1,857
Pct Chg 1995-9	9.7%	-7.7%	-1.3%	17.0%	8.3%
Internal Medicine					
1995	59996	376	$68,832	1.8	$4,130
1996	61629	369	$67,563	1.9	$4,164
1997	63292	362	$68,007	2.0	$4,304
1998	65614	349	$68,798	2.1	$4,514
1999	65548	327	$63,899	2.1	$4,188
Pct Chg 1995-9	9.4%	-7.2%	0.0%	16.6%	9.3%

* – Data for 1999 are incomplete (bills processed through 12/31/1999)

Sources: Provider Summary Files and Medicare Denominator Files (Aged and Disabled: excludes HMO)

Table 17

Total Medicare Billing Physicians, Average Caseload Payments per Physicians, Physician to Population Ratio and Total Medicare Payments: 1995 to 1999

Surgical Specialties

Year	Number of Physicians	Caseload	Payments per Physician	Physicians per 1,000 Medicare Beneficiaries	Total Medicare Payments (in $millions)
Surgical Specialties: Total					
1995	114,229	303	85,822	3.5	$9,803
1996	115,180	303	83,324	3.5	$9,597
1997	115,840	302	82,068	3.7	$9,507
1998	115,990	298	77,409	3.7	$8,979
1999	114,600	283	72,814	3.7	$8,344
Pct Chg 1995-9	1.5%	-1.7%	-9.8%	8.3%	-8.4%
General Surgery					
1995	21,186	246	77,260	0.6	$1,637
1996	20,961	244	76,192	0.6	$1,597
1997	20,857	242	74,124	0.7	$1,546
1998	20,620	237	70,318	0.7	$1,450
1999	20,159	220	62,651	0.7	$1,263
Pct Chg 1995-9	-2.7%	-3.7%	-9.0%	3.8%	-11.4%
Otolaryngology					
1995	7,624	374	48,783	0.2	$372
1996	7,679	375	49,065	0.2	$377
1997	7,745	375	49,914	0.2	$387
1998	7,808	362	48,440	0.3	$378
1999	7,771	341	46,726	0.3	$363
Pct Chg 1995-9	2.4%	-3.2%	-0.7%	9.2%	1.7%
Obstetrics/Gynecology					
1995	27,909	78	8,783	0.8	$245
1996	28,109	80	8,999	0.9	$253
1997	28,263	81	9,339	0.9	$264
1998	28,320	83	9,372	0.9	$265
1999	27,868	79	8,678	0.9	$242
Pct Chg 1995-9	1.5%	6.4%	6.7%	8.2%	8.3%

* – Data for 1999 are incomplete (bills processed through 12/31/1999)

Sources: Provider Summary Files and Medicare Denominator Files (Aged and Disabled: excludes HMO)

Table 17 (Cont)

Total Medicare Billing Physicians, Average Caseload Payments per Physicians, Physician to Population Ratio and Total Medicare Payments: 1995 to 1999

Surgical Specialties

Year	Number of Physicians	Medicare Caseload	Payments per Physician	Physicians per 1,000 Medicare Beneficiaries	Total Medicare Payments (in $millions)
		Ophthalmology			
1995	15,498	804	$194,123	0.5	$3,009
1996	15,650	796	$175,195	0.5	$2,742
1997	15,778	792	$169,559	0.5	$2,675
1998	15,734	772	$155,306	0.5	$2,444
1999	15,625	741	$150,102	0.5	$2,345
Pct Chg 1995-9	1.5%	-4.0%	-20.0%	8.3%	-18.8%
		Orthopedic Surgery			
1995	18,020	255	$88,067	0.5	$1,587
1996	18,384	260	$87,406	0.6	$1,607
1997	18,560	262	$86,554	0.6	$1,606
1998	18,666	263	$83,320	0.6	$1,555
1999	18,516	249	$77,137	0.6	$1,428
Pct Chg 1995-9	3.6%	3.1%	-5.4%	10.5%	-2.0%
		Urology			
1995	8,285	509	$163,177	0.3	$1,352
1996	8,333	512	$173,985	0.3	$1,450
1997	8,363	514	$180,166	0.3	$1,507
1998	8,412	508	$177,040	0.3	$1,489
1999	8,362	485	$175,646	0.3	$1,469
Pct Chg 1995-9	1.5%	-0.2%	8.5%	8.3%	10.2%

* = Data for 1999 are incomplete (bills processed through 12/31/1999)

Sources: Provider Summary Files and Medicare Denominator Files (Aged and Disabled: excludes HMO)

Table 18
Total Medicare Billing Physicians, Average Caseload Payments per Physicians, Physician to Population Ratio and Total Medicare Payments: 1995 to 1999

Medical Specialties

Year	Number of Physicians	Caseload	Payments per Physician	Physicians per 1,000 Medicare Beneficiaries	Total Medicare Payments (in $millions)
		Medical Specialties: Total			
1995	100,315	362	$84,229	3.0	$8,449
1996	102,371	365	$85,100	3.2	$8,712
1997	103,866	368	$88,015	3.3	$9,142
1998	105,037	370	$94,118	3.4	$9,886
1999	103,527	357	$92,280	3.3	$9,553
Pct Chg 1995-9	4.7%	2.2%	11.7%	11.7%	17.0%
		Cardiology			
1995	15,547	942	$181,651	0.5	$2,824
1996	15,902	936	$174,826	0.5	$2,780
1997	16,273	926	$177,947	0.5	$2,896
1998	16,795	905	$188,763	0.5	$3,170
1999	17,052	840	$177,225	0.6	$3,022
Pct Chg 1995-9	8.0%	-3.9%	3.9%	15.2%	12.3%
		Gastroenterology			
1995	7,351	436	$122,843	0.2	$903
1996	7,568	442	$118,068	0.2	$894
1997	7,766	444	$115,530	0.2	$897
1998	8,055	456	$121,199	0.3	$976
1999	8,236	431	$107,482	0.3	$885
Pct Chg 1995-9	9.6%	4.6%	-1.3%	16.8%	8.1%
		Neurology			
1995	8,244	352	$60,581	0.2	$499
1996	8,530	353	$61,042	0.3	$521
1997	8,700	358	$62,030	0.3	$540
1998	8,909	351	$64,904	0.3	$578
1999	8,902	330	$60,809	0.3	$541
Pct Chg 1995-9	8.1%	-0.3%	7.1%	15.2%	15.8%
		Psychiatry			
1995	28,992	84	$20,959	0.9	$608
1996	29,231	88	$20,686	0.9	$605
1997	29,294	91	$20,887	0.9	$612
1998	28,314	93	$21,709	0.9	$615
1999	26,820	88	$18,700	0.9	$502
Pct Chg 1995-9	-2.3%	10.7%	3.6%	4.1%	1.2%

* Data for 1999 are incomplete (bills processed through 12/31/1999)

Sources: Provider Summary Files and Medicare Denominator Files (Aged and Disabled, excludes HMO)

CMS LIBRARY
3 8095 00012923 5